

Docket No. 303.607US1
WD # 407962

Micron Ref. No. 99-0248

CLEAN VERSION OF PENDING CLAIMS

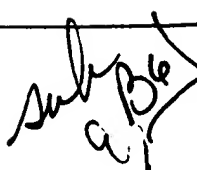
**STRUCTURES AND METHODS TO ENHANCE FIELD EMISSION IN FIELD EMISSIONER
DEVICES**

Applicant: Yong-Jun Hu
Serial No.: 09/387,164

RECEIVED
FEB 21 2002
TECHNOLOGY CENTER 2800

Claims 1-36, as of January 24, 2001 (Date of Response to First Office Action).

1. A field emitter display device, comprising:
at least one emitter having an implanted oxide layer that releases electrons at a predetermined energy level.
2. The device of claim 1, wherein the implanted oxide layer inhibits outgassing that includes moisture.
3. A field emitter display device, comprising:
at least one emitter having an implantation that releases electrons at a predetermined energy level, wherein the implantation lowers the potential barrier to enhance the releasing of electrons.
4. The device of claim 3, wherein the implantation is a layer underneath the surface of the at least one emitter.
5. A field emitter display device, comprising:
at least one emitter having an implantation that emits electrons at a predetermined energy level, wherein the implantation affects the lowering mechanism so as to enhance the emission of electrons.
6. The device of claim 5, wherein the implantation is a layer underneath the surface of the at least one emitter.

7. A field emitter display device, comprising:
at least one emitter having an implantation that releases electrons at a predetermined energy level, wherein the implantation affects the image force so as to enhance the releasing of electrons.
8. The device of claim 7, wherein the implantation is a layer underneath the surface of the at least one emitter.
9. A field emitter display device, comprising:
at least one emitter having an implantation that emits electrons at a predetermined energy level, wherein the implantation enhances the Schottky effect so as to enhance the emission of electrons.
10. The device of claim 9, wherein the implantation is a layer underneath the surface of the at least one emitter.
11. A field emitter display device, comprising:
at least one emitter having an implantation that releases electrons at a predetermined energy level, wherein the implantation decreases the dielectric effect of the at least one emitter to enhance the releasing of electrons.
12. The device of claim 11, wherein the implantation is a layer underneath the surface of the at least one emitter.
-  13. (Once Amended) A field emitter display device, comprising:
at least one emitter having an ion implantation layer that releases electrons at a predetermined energy level, wherein the layer enhances the releasing of electrons and the layer limits the outgassing so as to inhibit degradation of the at least one emitter.

14. (Once Amended) The device of claim 13, wherein the ion implantation layer is embedded in the surface of the at least one emitter.

sub B7
15. (Once Amended) A field emitter display device, comprising:
at least one emitter having an implantation layer that releases electrons at a predetermined energy level, wherein the layer lowers the potential barrier to enhance the releasing of electrons and the layer limits the outgassing so as to inhibit degradation of the at least one emitter.

16. (Once Amended) The device of claim 15, wherein the implantation layer is embedded under the surface of the at least one emitter.

sub B8
17. (Once Amended) A field emitter display device, comprising:
at least one emitter having an implantation layer that releases electrons at a predetermined energy level, wherein the implantation layer affects the image force so as to enhance the releasing of electrons and the implantation layer limits the outgassing so as to inhibit degradation of the at least one emitter.

18. (Once Amended) The device of claim 17, wherein the implantation layer is embedded in the surface of the at least one emitter.

a1 sub B9
19. (Once Amended) A field emitter display device, comprising:
at least one emitter having an implantation layer that emits electrons at a predetermined energy level, wherein the layer improves the Schottky effect so as to enhance the emission of electrons and the implantation layer limits the outgassing so as to inhibit degradation of the at least one emitter.

20. (Once Amended) The device of claim 19, wherein the implantation layer is embedded under the surface of the at least one emitter.

sub
B10

21. (Once Amended) A field emitter display device, comprising:
at least one emitter having an implantation layer that releases electrons at a predetermined energy level, wherein the implantation layer decreases the dielectric effect of the at least one emitter to enhance the releasing of electrons and the implantation layer limits the outgassing so as to inhibit degradation of the at least one emitter.

22. (Once Amended) The device of claim 21, wherein the implantation layer is embedded in the surface of the at least one emitter.

sub
9, B11
cont

23. (Once Amended) A field emitter display device, comprising:
at least one emitter having a silicon oxide ion implantation layer.

24. (Once Amended) A field emitter display device, comprising:
at least one emitter having an oxide implantation layer that releases electrons at a predetermined energy level.

25. A field emitter display device, comprising:
at least one emitter having an embedded silicon oxide layer.

26. The device of claim 25, wherein the embedded silicon oxide layer is formed by an implantation process.

27. A field emitter display device, comprising:
at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and enhances the releasing of electrons.

28. A field emitter display device, comprising:

at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and lowers the potential barrier to enhance the releasing of electrons.

29. A field emitter display device, comprising:

at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and affects the lowering mechanism so as to enhance the emission of electrons.

30. A field emitter display device, comprising:

at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and affects the image force so as to enhance the releasing of electrons.

31. A field emitter display device, comprising:

at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and improves the Schottky effect so as to enhance the emission of electrons.

32. A field emitter display device, comprising:

at least one emitter having an external coating and an embedded layer that releases electrons at a predetermined energy level, wherein the embedded layer limits outgassing to inhibit degradation of the at least one emitter and decreases the dielectric effect of the at least one

emitter to enhance the releasing of electrons.

33. A field emitter display device, comprising:

at least one emitter having an implantation that releases electrons at a predetermined energy level, wherein the implantation reduces the potential barrier to enhance the releasing of electrons and inhibits degradation of the at least one emitter in the presence of the outgassing; and

a light-emitting target that radiates when the released electrons strike the light-emitting target.

34. The device of claim 33, wherein the light-emitting target is coated with luminescent matter.

35. The device of claim 33, wherein the light-emitting target is coated with phosphorescent matter.

36. A video display, comprising:

a display screen for showing a video image; and

an array of field emission devices capable of forming the video image, wherein the array of field emission devices comprises:

at least one emitter having an implantation that releases electrons at a predetermined energy level, wherein the implantation reduces the dielectric effect of the at least one emitter and is stable in the presence of the outgassing; and

a light-emitting target that radiates when the released electrons strike the light-emitting target.